REMARKS

This amendment is submitted in an earnest effort to bring this application to issue without delay.

Applicant has canceled all claims last presented and is submitting new claims 11 through 20. Antecedent basis for the new claims 11 through 20 may be found in the substitute specification on pages 5 through 9. In particular antecedent basis for claims 11 through 15 may be found in the substitute specification on page 6, lines 13 to 18 and page 8, line 22 to page 9, line 2. In particular antecedent basis in the substitute specification may be found on page 6, lines 19 to 25 and page 9, lines 3 to 14 for claims 16 through 18. In particular antecedent basis in the substitute specification may be found on page 6, line 26 to page 7, line 3 and page 9, lines 15 to 19. Thus claims 11 through 20 are now in this application and are presented for examination.

Applicant notes that the Examiner is no longer applying the ALGER reference against any claim.

Applicant believes that his new claims 16 through 19 deal with the Examiner's objection to claims 7 through 10, last presented, as indefinite as improperly dependent upon claim 1 and deal with the Examiner's rejection of all claims last presented as

obvious under 35 USC 103 in view of newly cited GUGEL alone or together with CORROSION PROTECTION METHODS.

The Examiner believes that the first step of the method of claim 1 last presented, the first step of te method of claim 7 as last presented, and the first step of the method of claim 10 last presented, are all parallel, but distinct steps. Therefore she argues that it is improper for claim 7 or for claim 10 to be dependent upon claim 1. Thus Applicant is submitting new independent claim 11 to replace claim 1, new independent claim 16 to replace claim 7 and new independent claim 19 to replace claim 10. Note that the antecedent basis for the new claims is found principally on pages 5 through 9 of the substitute specification. However, the temperature range for claim 12 is found on page 3, line 24 of the substitute specification.

In the process in original claim 1, and now in new claim 11, Applicant is depositing Fe, Ni, Cr or Ti on the aluminum alloy surface and oxidizing the metal in situ to form a metal oxide where the metal forming the metal oxide is not Al, but is Fe, Ni, Cr or Ti. In original claim 10 and now in new claim 19, the metal forming the non-aluminum oxide coating on the aluminum-containing alloy is not deposited on the aluminum-containing alloy, but is in fact one of the metals already present in the aluminum-containing alloy. In the case of original claim 7, and now in claim 16,

please let us know if the chloride or fluoride bath that is applied to the aluminum-containing alloy contains the Fe, Cr or Ni as the fluoride or chloride salt, or whether the situation is the same as in original claim 10 where the metal that forms the non-aluminum oxide coating on the aluminum-containing alloy also is one of the metals already present in the aluminum-containing alloy. When we drafted proposed claims 16 through 18, we assumed the latter.

The Examiner argues that claims 1,2,4,6 and 10 are obvious under 35 USC 103 in view of GUGEL and that claims 7 through 9 are obvious in view of GUGEL together with CORROSION PROTECTION METHODS. The Examiner believes that the definition of the metal substrate disclosed in GUGEL is broad enough to include aluminum alloys and points to col. 7, lines 2 and 3 of the reference. The Examiner further believes that the definition of the oxide-forming element in col. 7, lines 37 to 47 deposited on the metal substrate to form an oxide is broad enough to include metals such as Fe, Ni, Cr and Ti . According to the official action in the paragraph bridging pages 3 and 4, the GUGEL method is very similar to the present method in terms of the temperature to which the alloy substrate is heated and at which the metal undergoing oxidation is deposited on the surface of the alloy substrate. The Examiner believes that inherently the GUGEL method includes forming a metal oxide, where the metal is other than Al on the surface of an aluminum alloy and forming the alpha-aluminum

oxide as a layer between the alloy substrate and the layer of metal oxide where the metal is other than Al.

Applicant does not agree with the Examiner's argument. There is no suggestion at all of the need to prevent formation of the metastable aluminum oxide and to promote formation of alpha aluminum oxide. In fact a check of all of the examples in the GUGEL application shows that the alloy substrate is always an iron-containing alloy, in particular various kinds of steels. There is no example in the reference showing any aluminum-containing alloy undergoing such a treatment. There is no indication that the problem of forming metastable forms of a metal oxide, such as θ- or γ-aluminum oxide, as opposed to stable forms such as the α-aluminum oxide, extends beyond aluminum alloys to iron alloys and to any of the other alloys with the metals named in GUGEL in col. 7, lines 2 and 3. Furthermore from among all of the elements listed in GUGEL in col. 7, lines 37 to 47 for forming the non-aluminum oxide layer on the aluminum-containing alloy, there is nothing that points in particular to Fe, Ni, Cr, or Ti as a group as opposed to all of the metals and other elements listed as suitable for forming the non-aluminum oxide. In fact according to col. 7, line 40, a Group IIIB element is included as one of the elements forming an oxide, and Al itself is a Group III element. Therefore the oxide layer formed on the surface of a metal substrate according to GUGEL could even include aluminum oxide!

In addition the kinds of alloys being treated in the specific examples according to GUGEL are entirely different from the special aluminum alloys according to the present invention characterized by an excellent oxidation resistance at very high operating temperatures above 1400° C.. In the tables throughout GUGEL, including Tables 1, 2, 6, 8, and 11, the steels coated with an oxide were tested at temperatures far lower than 1400 ° C.

In view of the very broad definition of the alloy substrate in GUGEL, the very broad definition of the element forming the oxide layer on the alloy substrate in GUGEL, the fact that none of the examples in GUGEL relates to forming a layer of a non-aluminum oxide on an aluminum alloy substrate, and the fact that all of the examples in GUGEL relate to steel as the alloy substrate, the GUGEL reference provides no basis to support a rejeciton of any claim now presented as obvious under 35 USC 103. In addition there is nothing in GUGEL that discusses the unique problem with these special high temperature aluminum alloys which resist oxidation at 1400° C and higher including the need to provide a protective coating of the specified non-aluminum oxide metal oxide and the need to form a stable α-aluminum oxide under the non-aluminum oxide metal oxide while avoiding the formation of metastable forms of aluminum oxide. The GUGEL reference in no way points to the Applicant's restricted aluminum-containing substrates or to Applicant's restricted list of metals deposited on the

aluminum-containing substrates to form the non-aluminum oxide coatingguides one "skilled in the art" in the formation of a non-aluminum oxide layer on the surface of an aluminum-containing alloy, and heating the aluminum-containing alloy coated with the non-aluminum-containing oxide layer to facilitate formation of the stable α-aluminum oxide while suppressing metastable forms of aluminum oxide. Thus GUGEL provides only a "broadcast" or "shotgun" disclosure that in no way either anticipates or renders obvious the presently claimed invention. See Ex parte Strobel and Catino, 160 USPQ 352 (Bd. App. 1968). Thus GUGEL provides no basis to reject any of claims 10 through 15, 19 and 20 as obvious under 35 USC 103.

Furthermore in the case of new claims 16 through 18, which replace claims 7 through 9, Applicant does not believe that combining GUGEL with CORROSION PROTECTION METHODS changes anything that we have discussed herein above. The CORROSION PROTECTION METHODS indicates only that aluminum may be coated with an aluminum oxide to prevent corrosion as well as with chromate coatings. The Examiner has focused on the chromate coatings because these are applied to the aluminum as chromic acid H_2CrO_4 together with phosphoric acid and fluoride to form the chromate coatings. There is no indication in the CORROSION PROTECTION METHODS reference, however, of treating the special aluminum-containing alloy useful for high temperature oxidation resistance. The treatment of the

aluminum-containing alloy according to the present invention in claims 16 through 18 in a fluoride or chloride bath is not similar to the process disclosed in CORROSION PROTECTION METHODS, in which chromium from an external source is deposited as a chromate coating onto a metal substrate. According to claims 16 through 18, the metal that forms the non-aluminum oxide is one of the metals that comes from the aluminum containing alloy itself, including Fe, Cr, Ni or Ti and not from an external source. Applicant notes that the chromium in the chromic acid in the process disclosed in CORROSION PROTECTION METHODS is in the hexavalent state, and not in the elemental state, as in the method of present claim 16 in which the deposition takes place where the source of the elemental metal (e.g. Cr) that is oxidized in situ to form the metal oxide layer on the aluminum-containing alloy, is the aluminum-containing alloy itself. Thus the combination of GUGEL with the CORROSION PROTECTION METHODS reference provides no basis to reject claims 16 through 18 under 35 USC 103 as obvious.

Applicant believes that all claims now presented are in condition for allowance and a response to that effect is earnestly solicited.

K.F. Ross P.C.

/Jonathan Myers/

By: Jonathan Myers, 26,963
Attorney for Applicant

31 August 2009
5683 Riverdale Avenue Box 900
Bronx, NY 10471-0900
Cust. No.: 535
Tel: 718 884-6600
Fax: 718 601-1099
Email: *email@kfrpc.com*